BEFORE THE PUBLIC SERVICE COMMISSION
OF WISCONSIN

Quadrennial Planning Process II — Docket No. 5-FE-100

CLEAN WISCONSIN'S COMMENTS REGARDING THE QUADRENNIAL REVIEW

Clean Wisconsin appreciates the opportunity to respond to the Commission's Request for Comments regarding the Quadrennial Review process. These comments will address the questions raised in the Commission's January 30, 2014 Request for Comments, as well as other issues included in the scope of this docket.

I. Overview

The budgets for energy efficiency and renewable programs in Wisconsin are capped by statuary mandates. Therefore, the Commission needs to decide how best to spend the limited funding available, which necessarily includes identifying the goals that the Commission seeks to achieve through energy efficiency and renewable resource programs. If the Commission decides that reducing emissions is the primary goal of Focus programs, then the Commission's policies should aim to increase energy savings. Conversely, if the Commission decides that reducing rate impacts is a more important objective, then Focus should increase program participation and increase demand savings.

While the establishment and achievement of Focus program goals is a balancing act among various objectives, the Commission should, at a minimum, explicitly identify the primary goals for the Focus programs.

As discussed in greater detail in the body of these comments, to the extent that Wisconsin can increase its investment in its energy efficiency and renewable resources, it will be in a better position to comply with the numerous upcoming environmental regulations on existing fossil fuel units in a least-cost manner.

I. The Role of Focus on Energy in Meeting Federal Carbon Pollution Standards for Power Plants.

The U.S. Environmental Protection Agency ("EPA") is in the process of developing regulations covering carbon dioxide emissions from new and existing power plants under section 111 of the Clean Air Act (the "Act"). Those federal regulations will require states to develop and submit plans under section 111(d) of the Act to reduce carbon dioxide emissions from existing power plants, perhaps as early as June 2016. The State of Wisconsin

can and should develop a state plan under section 111(d) of the Clean Air Act that encourages and rewards emissions reductions from energy efficiency.

These comments provide (1) a brief description of the carbon standards process; (2) a brief analysis suggesting a strong role for end-use energy efficiency citing published analyses; and (3) a review of possible approaches the State may take under section 111(d) to capture the value of its energy efficiency investments. After these general comments, we answer the specific questions posed by the Commission in its January 30th Request for Comments.

A. THE CARBON STANDARDS PROCESS

In a June 2013 memorandum to EPA, President Obama directed the EPA to issue draft carbon standards for new power plants in September 2013, and to finalize those new standards in due course.[1] The President also directed the Agency to issue draft federal guidelines to states that require states to submit state plans to regulate existing power plants under section 111(d) of the Act. According to the President's directive, EPA and states are expected to have state plans in place with carbon standards for existing power plants by June of 2016.

Regulation of carbon emissions from power plants entails three regulatory steps at the federal and state levels. First, the U.S. EPA must issue performance standards under section 111(b) of the Act covering new power plants. Second, EPA issues federal guidelines to states under section 111(d) directing states to develop and submit plans to cover existing power plants in the state. Third, the states follow the Act and the federal guideline in developing, proposing to EPA and ultimately enacting a state plan covering existing power plants in the state. Each of these steps is described in more detail below.

1. Step 1: EPA Issues New Source Performance Standards

In September 2013, EPA released a draft new source performance standard covering carbon emissions from new power plants. EPA accepted comments on the new source rules through March 10, 2014.[2] EPA is now expected to consider the comments on the new source draft and issue the rules in final form. The proposed standards for new sources apply generally to fossil-fuel fired boilers and stationary combustion turbines bigger than 25 megawatts in capacity that generate electricity for sale.[3]

2. Step 2: EPA Issues Guidelines to States for Developing State 111(d) Plans

[1] Materials related to the President's Climate Action Plan are available on EPA's website: http://www2.epa.gov/carbon-pollution-standards/learn-about-carbon-pollution-power-plants#CAP.

[2] http://www2.epa.gov/carbon-pollution-standards/public-hearing-proposed-carbon-pollution-standards-new-power-plants.

[3] http://www2.epa.gov/sites/production/files/2013-09/documents/20130920technicalfactsheet.pdf.

In June 2014, EPA is expected to issue draft guidelines to states for the development of state plans to reduce carbon emissions from existing power plants.[4] The draft guidelines will be subject to public review and comment, and after that comment period EPA is expected to issue final guidelines in June 2015.[5] Issuance of final guidelines will trigger the requirement that states must develop plans to reduce carbon emissions from power plants and obtain EPA's approval of those plans.

3. Step 3: States Finalize State Plans and Submit for EPA Approval

States will have approximately 13 months after EPA issues the final federal guideline regulations to finalize state plans and submit them for approval.[6] In general, states will need to inventory all existing power plants subject to the standards. States will need to determine the mechanism(s) the state has or will put in place to achieve compliance with the federal requirements.

Because carbon standards apply to sources within the electric generating unit category of sources, the mechanism(s) chosen by each state must be implemented at least in part at the plant level. Each subject power plant must have an enforceable permit condition added to its permit that binds the plant to the state's chosen approach to section 111(d) compliance. This means that, in order to take advantage of the Focus on Energy program's carbon emissions reductions, there must be a programmatic connection to the power plants covered by the standards.

We discuss possible ways the State might achieve this connection between Focus on Energy and the covered plants below. We note that the timeframe established by the White House and EPA for developing and implementing standards for existing power plants will be ambitious unless states begin considering how best to accomplish reductions now. If energy efficiency is to play a role in reducing emissions for Wisconsin, state energy and environmental regulators must engage constructively with stakeholders to devise an approach that best promotes energy efficiency and accurately captures its emissions benefits.[7] The Commission could consider opening a separate docket to explore these issues.

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[4] The existing sources covered are those sources that would be covered by the 111(b) standard if they were new. In other words, section 111(d) covers the same type of emissions sources covered under section 111(b). Based on the draft new source rule issued by EPA on September 20, 2013, that means the state plans must cover existing fossil-fuel-fired boilers and stationary combustion turbines that are larger than 25 MW and sell electricity.

[5] This is the timing required by the President's memorandum to EPA. http://www.whitehouse.gov/the-press-office/2013/06/25/presidential-memorandum-power-sector-carbon-pollution-standards.

[6] This timing is based on the timeline prescribed by the President in his memorandum to EPA.

[7] We note that state officials consulted stakeholders including Clean Wisconsin and subsequently filed comments to EPA on December 13, 2013. State officials have subsequently joined the regional Midwestern Power Sector Collaborative, an effort to evaluate approaches to carbon standard implementation on the state and regional levels.

B. Flexibility under Section 111(d) of the Clean Air Act and the Role of Energy Efficiency

In order to capture reductions achieved by a state energy efficiency program, Wisconsin will need to implement a flexible, system-based approach to section 111(d) compliance. Clean Air Act experts generally agree that states have considerable flexibility under the Act in devising state plans under Section 111(d), so long as those plans are equivalent to the federal requirements, i.e. they achieve the reductions required by EPA's federal guideline on the timeline prescribed by EPA in an enforceable manner.[8] This flexibility allows a state to approach emissions reductions on a system-wide basis, so long as plant-specific requirements are imposed on each plant subject to the standards and actual emissions reductions (in the aggregate) are equivalent to or better than federal requirements. States also have the flexibility to implement regional system-based approaches carried out in cooperation with other states.[9]

1. Equivalency of State Plan

A state's section 111(d) plan can only be approved by EPA if the state plan achieves an emissions result that is equivalent to or better than that required by the federal guideline. To be equivalent, a state plan must achieve the reductions required (in tons of CO2) or meet the emissions rate required (pounds per MWhr) on the timeframe called for by the federal guideline. In general, system-based approaches that incorporate energy efficiency reductions can make this equivalency showing.

There is no doubt that energy efficiency measures lead to emissions reductions wherever electricity comes from fossil-fuel sources. The issue is what system-based policy mechanism best captures energy efficiency reductions given the particular reality on the ground. Wisconsin should evaluate several approaches, as noted below in section I.C.

2. Enforceable at the Source Level and Energy Efficiency

Section 111(d) applies to existing plants within the source category established by EPA. System-based approaches that incorporate energy efficiency are permitted so long as the covered plants are subject to enforceable requirements to comply with the system-based approach. While section 111 clearly permits emissions limitations or rates applied at the plant level to each plant, plant-by-plant approaches are inflexible, inefficient and cost more. System-based approaches allow for flexible and lower-cost achievement of emissions goals by expanding the options plant owners have to comply with the carbon standards.

Energy efficiency is just one of the lower cost options available in a system-based approach.[10] For example, an emissions budget approach with trading is a system-based

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[8] Wannier, Gregory E. et al., Prevailing Academic View on Compliance Flexibility under Section 111 of the Clean Air Act, Resources for the Future 2011, available at: http://www.rff.org/RFF/Documents/RFF-DP-11-29.pdf; Litz, Franz T. et al., What's Ahead for Power Plants and Industry? Using the Clean Air Act to Reduce Greenhouse Gas Emissions, Building on Existing Regional Programs, World Resources Institute 2011, available at http://www.wri.org/publication/what%E2%80%99s-ahead-power-plants-industry-using-clean-air-act-reduce-ghgs-building-regional.

[9] Id.

[10] Konschnik, Kate and Ari Peskoe, Efficiency Rules, The Case for End-Use Energy Efficiency Programs in the Section 111(d) Rule for Existing Power Plants, March 3, 2014 at

approach used repeatedly in the past—most recently in Wisconsin under the Clean Air Interstate Rule (CAIR)[11]—power plants are subject to an enforceable condition in their air operating permits that requires the plants to comply with the budget trading system's rules. The budget trading system, meanwhile, is only concerned with getting least-cost reductions no matter where those reductions are located.

3. State versus Regional Approaches

While section 111(d) planning requirements fall to each state, the electricity system and the wholesale electricity markets are regional. The regional nature of our electricity system presents challenges for Wisconsin in the section 111(d) context and tends to demonstrate the opportunities associated with regional cooperation between and among states in the Midwest. Accounting for and crediting energy efficiency reductions would benefit from regional cooperation.

When electricity is generated out of state and consumed in state, the reductions attributable to in-state energy efficiency measures will show up as avoided emissions at out-of-state power plants. The question then arises, which of the two states will get credit for the energy efficiency measures under a section 111(d) plan? Without cooperation between the two states, the avoided emissions will register in the generating state. The exporting and importing state must cooperate in order to fairly and accurately account for the reductions.

Capturing the value of energy efficiency investments is just one reason for regional cooperation. Flexible multi-state regional approaches tend to lower the cost of emissions reductions because they allow all participating states to benefit from the lowest cost emissions reductions available across the entire region. Regional approaches also offer the potential for better integration with competitive wholesale electricity markets, such as the Midcontinent Independent System Operator (MISO) covering all of Wisconsin and much of the area in all of the states surrounding Wisconsin. We provide an initial evaluation of different approaches to section 111(d) implementation in Section I.C. below.

C. The Challenges of Including Energy Efficiency: Mass-Based vs. Rate-Based vs. Carbon Value Approaches

Capturing energy efficiency presents differing challenges depending on the regulatory approach chosen by a state in its 111(d) plan. Of the system-based approaches proposed to date, mass-based approaches present fewer challenges for counting reductions accomplished through end-use energy efficiency. A carbon value approach does not account for energy efficiency but it may provide a new revenue stream to pay for energy efficiency investments. Rate-based approaches, in contrast, require a special mechanism for evaluating and accounting for emissions reductions and issuing credits. These approaches are compared in Table 1 below.

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http://blogs.law.harvard.edu/environmentallawprogram/files/2013/03/The-Role-of-Energy-Efficiency-in-the-111d-Rule.pdf.

[11] The Cross-State Air Pollution Rule (CSAPR) was to succeed the CAIR program in Wisconsin, but a federal appeals court threw the CSAPR program out in a decision currently on appeal to the U.S. Supreme Court. Homer v. EPA, 696 F.3d 7 (D.C. Cir. 2012).

1. Mass-Based Approaches Capture Energy Efficiency Gains

Mass-based system approaches focus on the quantity of emissions from a group of plants over time. The group can be a utility's fleet—an approach we refer to as the utility portfolio approach—or it can be all of the plants covered within a state or region—an approach we refer to as the emissions budget with trading. The object in a mass-based approach is to accomplish a reduction of emissions from a base year across the group of plants in the aggregate. Some plants can emit more as long as overall reductions occur.

Under mass-based approaches, any measure or combination of measures that reduce emissions—energy efficiency, renewables, fuel switching, retirements, and changes in dispatch—come together to contribute to the aggregate result without the need to measure specific components. The regulator need not concern itself with the methods used to reduce emissions, so long as the measured emissions from its fleet meet the required emissions goal. Because energy efficiency produces emissions reductions at a low or negative cost when factoring in energy savings, energy efficiency investments will pay off by lowering the cost of compliance with the mass-based emissions reduction approach. However, while the accounting of carbon emission reductions through energy efficiency takes care of itself in a mass-based approach, utilities may have varying degrees of confidence in the reliability of the reductions. It may be that less of the cost-effective reductions through efficiency are captured than would be the case with a rate-based system that gives credits for the efficiency reductions.

2. A Carbon Value Approach May Provide Revenue for EE

A carbon value approach, such as that proposed for implementation as part of the wholesale electricity market by the independent system operator, does not account for or credit emissions reductions from energy efficiency. Requiring generators to include a carbon value in their bids and pay a carbon charge for each ton of carbon emissions attributable to generation supplied, will lead to a change in dispatch across the ISO market to accomplish the emissions result. In such a program, energy efficiency will reduce emissions and lower the carbon value necessary to accomplish the emissions result. Thus, energy efficiency measures will complement the ISO-based program and make it less costly.

3. Rate-Based Approaches Can Credit EE but Require a Federally Enforceable Mechanism Producing Permanent, Quantifiable and Surplus Reductions

Rate-based system approaches, in contrast, are focused on achieving a specified pounds per megawatt hour emissions rate averaged across a group of plants. The group can be the utility's fleet, or it can be all the plants in a state or region. Calculating the aggregate emissions rate across a group of plants is relatively straightforward using available emissions data reported, and a record of megawatts generated. But a mechanism for incorporating energy efficiency and other emissions reduction measures, such as renewable energy, must be created.

Creating a mechanism to credit energy efficiency reductions present some challenges. Historically, EPA has applied a four-pronged test to crediting off-site emissions reductions under the Clean Air Act: reductions must be enforceable, permanent, quantifiable and surplus.[12] To make the reductions enforceable under a rate-based approach with trading, the state will have to make the Focus on Energy program an enforceable part of the state implementation plan under section 111(d) and provide an enforceable mechanism for existing power plants to access credits based on the Focus program.[13] Credits from a crediting mechanism would allow existing power plants to purchase (or otherwise acquire) those credits and submit them to improve their emissions rate.

In order to be "permanent", the energy efficiency reductions would have to survive for as long as the compliance requirement.[14] What this means in the greenhouse gas context is perhaps open to interpretation. Many energy efficiency investments lead to measures that have a specific lifetime, after which the energy savings dwindles or stops. Assumptions must be made about what happens in such instances to address the "permanence" requirement, or credits for EE might likewise be usable for a limited time period.

Reductions that are credited must also be "quantifiable." Quantifying energy savings from implemented measures is relatively straightforward and is already measured in the Focus on Energy program. The challenge lies in determining the emissions reduced by those energy savings and confirming the location of the reductions to assure no double counting of reductions. Because electrons on the system cannot be traced back to their sources, measuring emissions reductions requires assumptions about where the electricity not consumed would have come from had it been consumed.

Assumptions about where the electricity would have come from provide a rough measure of actual real world emissions reductions. Meanwhile, emissions are actually measured at the stacks of existing power plants. It is unlikely that the emissions measurements will match the assumed reductions, meaning some "true-up" mechanism might be required to make sure EE reductions are not over-credited. This relates to the federal requirement that the reductions credited be "surplus".

The surplus requirement means that reductions credited cannot be relied upon to meet other Clean Air Act requirements. Thus, to the extent the state already relies on energy efficiency in its state implementation plan for other pollutants, it may not be able to rely on it for purposes of section 111(d).[15]

When quantifying and crediting energy efficiency reductions, interstate dynamics tend to complicate matters. Because Wisconsin is a net importer of electricity from out of state, some portion of the emissions reductions that occur from energy efficiency in state will "appear" as reduced emissions outside of the state. If the state were to credit energy efficiency for reductions that occur out of state, without coordinating that crediting with the states where the generation is located, then the reductions will be double-counted.

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[12] See Konschnik & Peskoe, at p. 8.
[13] Id at p. 9.
[14] Id at p. 10.
[15] Id at p. 11.

4. Regional Solutions Help Capture the Benefits of EE Investments

Wisconsin is part of the Midcontinent Independent System Operator (MISO) system. This means that power flows and wholesale electricity prices are a function not only of what happens in Wisconsin, but also what happens in the other states with generators serving the MISO system. This multistate market tends to amplify the state-by-state boundary issues relative to capturing the benefits of energy efficiency. But regional cooperation can help address those issues.

One way to cooperate is to develop and implement a regional program to implement section 111(d) requirements. One such regional approach—emissions budget with trading—has been used repeatedly in the power sector in the region. The Clean Air Interstate Rule (CAIR), its predecessor NOx SIP Call program, and its successor the Cross-State Air Pollution Rule (CSAPR) are all emission budget and trading programs. An emissions budget and trading program would allow states cooperating to share the costs and benefits of the section 111(d) program while simultaneously achieving aggregate reductions at the lowest cost through a market-based approach.

Another approach recently proposed by the generation and transmission cooperative, Great River Energy, would create a market-based approach implemented at the regional level by the independent system operator (ISO).[16] Under the ISO-based approach, a carbon value would be set at a level designed to change the dispatch of power plants in the region to accomplish the required regional emissions result. Generators bidding into the MISO would be subject to a requirement that they add the carbon value to their bids to supply power to the ISO market, and pay a carbon charge equal to the carbon value times the emissions attributable to the power supplied. Revenues from the collection of the carbon charge would be returned to load serving entities purchasing power from the ISO, substantially offsetting the impact of the carbon charge on consumers.

[16] http://www.greatriverenergy.com/aboutus/pressroom/lead_lead3_020514_ghg_reg.html. For a presentation outlining the approach, see http://www.brattle.com/system/news/pdfs/000/000/616/original/A_Market-based_Regional_Approach_to_Implementing_EPA%E2%80%99s_GHG_Emissions_Regulation.pdf?1391603705

Table 1. Comparing Different Approaches to Section 111(d) Planning on Energy Efficiency			
Approach	**Credits Energy Efficiency?**	**Measurement and Verification Issues?**	**Addresses Regional Issues?**
Simple plant-by-plant emissions rate	No. Plants must meet emissions rate without flexibility.	Not applicable.	No.
Utility portfolio emissions budget	Only to the extent that energy efficiency is carried out in utility service territory and leads to lower emissions at utility's plants.	Because the approach is mass-based, there is no need to measure and verify each unit of EE. Reductions show up in overall emissions.	Only to the extent states coordinate implementation and address portfolio across state lines.
Utility portfolio emissions rate	Not in Wisconsin where utilities do not administer Focus EE program.	Not applicable.	No.
Emissions rate with trading	Yes, trading allows for issuance of EE credits to the Focus program administrators.	A mechanism must be set up to measure, verify and credit each unit of reduction from specific EE measures.	Only to the extent states coordinate implementation and allow trading across state lines.
Emissions budget with trading	Yes, to the extent that energy efficiency results in emissions reductions within the state or within states that allow trading.	Because the approach is mass-based, there is no need to measure and verify each unit of EE inside the state. Reductions show up in overall emissions.	Only to the extent states coordinate implementation, as in the Clean Air Interstate Rule (CAIR) and similar multi-state programs.
ISO-based carbon value	No, but the revenue collected from the carbon adder by the ISO and returned to load-	Not applicable.	Yes, the ISO-based approach is regional by definition.

	serving entities could be used for energy efficiency.		

D. Addressing the Commission's Specific Questions

1. Assuming demand-side energy efficiency will be an allowable compliance mechanism, should Focus be used to cost-effectively meet federal carbon standards? Why or why not?

Yes. All indications are that the US Environmental Protection Agency (EPA) will include energy efficiency as a mechanism for compliance with the upcoming US EPA rule on carbon emissions from existing power plants.[17] Efficiency avoids environmental impacts of electricity generation, including emissions of greenhouse gases, SO_2, NO_X, particulates, and air toxics; emissions of solid wastes; consumption of water; land use; mining impacts; aesthetic impacts and more.

Energy efficiency is a low-cost resource alternative to supply-side options that can result in significant benefits to the environment. Every kilowatt-hour saved through efficiency results in less electricity generation and, thus, less pollution. Energy efficiency can also delay or avoid the need for new power plants or transmission lines, thereby reducing the environmental impacts associated with power plant or transmission line siting.
Unlike other pollution control measures – such as scrubbers or selective catalytic reduction – energy efficiency measures can reduce air emissions with a net reduction in costs. Thus, energy efficiency programs should be considered as one of the top priorities when investigating options for reducing air emissions and other environmental impacts from power plants.

If efficiency resources are not properly assessed in the analysis of EPA regulation compliance options, then customers could likely pay significantly higher electricity costs. If a generator decides to install control technologies to comply with the regulations, when plant retirement in combination with efficiency resources would be a less expensive option, then customers will bear the increased costs of those control technologies. If, on the other hand, a generator decides to retire a coal plant and replace it with another supply-side resource (e.g., a natural gas combined cycle plant) without first considering lower cost efficiency options, then customers will bear the increased costs of the new supply-side resources, and associated environmental compliance costs for these resources.

For regions with organized wholesale markets such as Wisconsin, customers and utilities could be affected by generators' decisions for any of the coal plants in the region of the market. The costs of complying with the EPA regulations could be passed on through wholesale energy and capacity prices throughout the region, either directly by increasing

[17] For example, as recently as February 7, 2014, EPA Administrator Gina McCarthy said that the forthcoming greenhouse gas regulations for existing power plants under 111(d) of the Clean Air Act will allow policymakers "to incent additional energy efficiency, to incent renewables, to incent all of the work you have been doing for so long." (Knight, Chris. 'McCarthy Says Power Plant Climate Rule Will Push Efficiency, Renewables", Inside EPA Weekly Report. Vol. 35, No. 7. Feb. 14, 2014.

costs of plants that sometimes set clearing prices or indirectly by removing plants from the bottom of the bid stack.

Whether or not EPA allows states to use energy efficiency as an option for compliance with 111(d), expanding the role of energy efficiency in Wisconsin's resource portfolio will put downward pressure on energy bills. To sum up:

- Federal carbon standards on existing power plants will make the investments Wisconsin is making in energy efficiency even more cost-effective, no matter what approach the state chooses in its state 111(d) plan. Energy efficiency is already the lowest cost way to meet energy demand, but carbon rules will help internalize the true cost of fossil fuels which will make efficiency even cheap relative to fossil generation.Federal carbon standards will increase the cost of electricity by some amount, making the energy cost savings from avoided electricity consumption greater. The Focus program is and will be more important than ever for Wisconsin.

- As discussed above, a mass-based approach provides the simplest method for capturing the value of energy efficiency in a section 111(d) program. Mass-based programs, including an emission budget with trading approach, automatically reflect measures like energy efficiency and renewable energy. (They also give credit for other events, like plant retirements). Emissions are measured at the start of the program and compared to emissions during the program to determine compliance.

- If the state chooses a rate-based approach with energy efficiency crediting, the state will need to develop a crediting mechanism and make the Focus program subject to federal enforcement as a Clean Air Act compliance mechanism in the state's 111(d) plan.

- Because the state is a net importer of electricity, cooperating with neighboring states to develop and implement a regional program makes good sense for Wisconsin.

2. What changes to Commission policies regarding energy and demand savings would better position Focus to assist in the state's compliance with federal carbon standards?

- Carbon standards bolster the already strong case for energy efficiency investments through Focus. Indeed, carbon standards will increase the value of every unit of energy savings. The most important way to help position Focus to ensure Wisconsin can comply with future carbon rules at the lowest cost would be to increase the funding for the program. The Commission is in a great position to do that simply by releasing all of the funds being held in reserve above the agreed upon 30 percent reserve margin. Because this is a substantial amount of money we would recommend that the Commission this funding in two or three installments and announce that it is being done, in part to better position the state to comply with EPA's forthcoming carbon pollution rules at the lowest price possible to ratepayers.

3. What changes in the design and implementation of Focus programs would better position Focus to assist in the state's compliance with federal carbon standards?

- If the state pursues a mass-based approach to carbon standards for existing power plants, then the standards would not require changes to the architecture of the Focus program in order to capture the benefits of the reductions. If, however, the state pursues a rate-based program with the trading of energy efficiency credits, then changes to the Focus program would likely be required, including the creation of a crediting mechanism and the need to make the program federally enforceable. However, given the rigorous and relatively transparent evaluation of the program already in place this would presumably be easier for Focus than most utility-run programs.
- If the state pursues a carbon value approach through the MISO, then Focus investments will tend to lower the carbon value necessary to achieve the emissions result and no changes to the Focus program would be necessary.
- The Commission could consider directing the Administrator to roll out programs to maximize carbon reductions over time, this would presumably mean market transformation programs. The Commission would need to explore further the measurement and verification principles and practices that could be applied track these additional carbon emission reductions. That would be a very worthwhile discussion.
- Consistent with the policy recommendation to continually screen energy efficiency opportunities, Focus programs should emphasize long-term, deeper savings, as energy efficiency may take time to ramp up, and longer-term savings will continue to respond to evolving EPA regulations. Such an approach will likely require implementation of programs that are cost-effective over the entire life of measures installed, rather than measures with high cost-effectiveness but shorter payback periods which typically constitute the "low-hanging" fruit of energy efficiency programs.
- Avoided costs used in efficiency screening should properly account for all potential power plant refurbishments and retirements. The avoided energy and capacity costs associated with energy efficiency could be higher in the future, as existing generation units become more expensive as they are either retrofitted or retired to comply with environmental regulations. Some retrofit technologies can reduce the capacity factors and increase the operations and maintenance costs of the existing coal units. Under a retirement scenario, some of the replacement facilities might have higher fuel or operating costs than the existing coal unit. These future changes should be factored in to the energy efficiency cost-effectiveness analysis in order to properly capture the full value of the efficiency. For wholesale markets, this should include the best possible forecast of all of the coal units likely to be retired or refurbished within the market region.

4. How should carbon attributes of energy efficiency savings be assigned or obtained?

- The simplest methods for capturing energy efficiency benefits are to pursue carbon standards through a mass-based or carbon value approach. Under a mass-based approach utilities would have heightened interest in ensuring that focus dollars were spent on a pro-rata base in proximity to their load. Under a rate-based approach carbon reductions could be assumed commensurate with the average Kwh savings multiplied by a discount rate to account for reliability and persistence losses and then credited relative to contributions to the program from each utility.
- Focus should own the carbon attributes associated with the energy savings from its energy efficiency programs. Language should be added to its applications and contracts that transfers ownership of the attribute to Focus. Focus should set up a database to track the attributes as soon as possible, in case the final rule allows past savings to apply prospectively. Once the EPA has released draft regulations, Clean Wisconsin will provide further comments on the allocation of carbon attributes.

II. Overall Goal

1. Question a. What are the advantages to establishing an overall savings goal for Focus, compared to establishing specific kWh and therm goals? What disadvantages?

The advantages of establishing an overall savings goal for Focus is that the program offerings are then fuel blind. Energy efficiency programs that target both electricity and gas savings offer a variety of important benefits. For example, a fuel-blind approach ensures fewer lost opportunities, as the programs can address all measures in a home or building at one time, rather than requiring customers to participate piecemeal.
The disadvantage relates to customer equity concerns, where electricity customers may fund programs for non-electric customers, or gas customers may fund programs for non-gas customers.

2. Question b. What methods and considerations are appropriate in establishing overall savings goals?

The criteria that should be considered in establishing overall savings goals include customer equity, aggressive but realistic targets, cost-effectiveness and costs. These criteria are commonly used in other states for setting efficiency savings goals. For example, states often try to increase savings as a percent of sales, reduce the cost per saved energy, and ensure that all customers have an opportunity to participate in programs.

It is also important to evaluate savings goals from a number of different lenses. For example, historical program success and lessons learned are an important consideration, so that stakeholders can benchmark program results. The projected energy efficiency future is also important to consider, such as expected customer demand, technology developments, carbon regulation, and other market conditions. Finally, it can be useful to review program best practices from other states to ensure programs are reaching their full potential.
Job creation may be considered as a benefit of energy efficiency programs but should not be used as a specific criterion for determining goals because of the difficulty of measuring net employment impacts.

3. Question c. If an overall energy savings goal is established, should minimum levels of kWh and therm savings still be required? If so, how should those thresholds be determined?

Yes, minimum levels should be established for kWh and therm savings. When developing minimum thresholds, the PSC should consider both historically achieved savings and projected savings potential. Focus should make an effort to increase both kWh and therms savings such that neither savings type falls significantly below historical levels. However, recognizing that the cost per saved energy may increase over time, and that the budget is statutorily fixed, Focus should evaluate and propose savings thresholds to the PSC on a regular basis to ensure that the thresholds are responsive and reflective of the current and projected energy efficiency environment, including efficient technology availability, cost per saved energy, and market potential and saturation.

III. Energy and Demand Emphasis

1. Question a. Should energy and demand reductions be of equal priority when setting Focus goals? If not, which should receive priority and why?

Both energy and demand savings are critical to a carbon-constrained future. Therefore, separate goals should be identified for each type of savings.
Focusing on demand savings will depress wholesale market prices when they are the highest and may reduce rate and bill impacts relative to a focus on kWh savings. However, considering that coal is on the margin the majority of time in the Wisconsin region, energy savings might warrant a higher priority than demand savings, because that would likely have the greater impact on carbon emission reductions. Also considering that the Wisconsin region is currently experiencing a capacity surplus, it could be an appropriate time to ramp-up energy savings.

2. Question b. To what extent can the relative emphasis between energy and demand savings affect Focus' ability to help achieve carbon reduction goals?

Emphasizing energy savings can help reduce the system's overall energy usage, thereby lowering the amount of carbon produced by generating units in any given hour. The Wisconsin region relies heavily on coal resources, which are carbon-intensive. A focus on energy savings could provide greater carbon reductions for Wisconsin and the region. However, emphasizing demand savings can help reduce the system's peak energy usage, thereby mitigating reliance on inefficient peaking units. Peak shaving measures can also reduce net system needs and nicely complement wind resources, which tend to produce the greatest output on shoulder periods.

3. Question c. To what extent can the relative emphasis between energy and demand affect Focus' ability to influence future statewide capacity needs?

Both energy and demand savings from energy efficiency programs can affect future capacity needs. It is essential to invest in energy efficiency on an ongoing basis, regardless

of the timing of capacity needs, because of the lead time needed to ramp up efficiency programs.

Dismissing energy efficiency resource options because they are not currently needed tends to lead to an outcome where a large portion of the cost-effective efficiency resources remains untapped over the long-term. The logic underlying this leads to a "cycle of denial", which included the following four phases.

- First, the utility or state does not have a need for new capacity resources for several years out into the future, and therefore does not pursue all cost-effective energy efficiency, or even a small portion of the cost-effective efficiency available, because the need is not apparent.
- Second, the utility or state eventually has a need for a capacity resource within the next few years, argues that there is not enough energy efficiency available to meet that need for new capacity, and therefore implements few or no efficiency resources.
- Third, the utility constructs, purchases, or contracts for the output from a new power plant. Once the plant is built, the avoided capacity and energy costs that are used to evaluate energy efficiency resources plummet. The utility or state sees no need for new capacity resources, and therefore implements few or no efficiency resources.
- Finally, over time a new capacity resource is needed, and the cycle repeats itself. A large portion of energy efficiency resources remains untapped. Customers pay much higher costs than necessary for their electricity.

A long-term resource planning approach is especially important for energy efficiency resources because they require time to implement. Achieving anywhere near the full cost-effective potential for efficiency requires a combination of many factors, such as comprehensive regulatory policies; program administrator institutional support and skills necessary to design and implement efficiency programs; an infrastructure of trade allies, contractors, architects and other market actors to assist with the implementation of efficiency resources; and informed customers. Even when all of these factors are in place, or are in development, it still takes time to work with customers and assist them in adopting energy efficiency measures.

It is also important to ensure that energy efficiency resources are accurately incorporated into regional supply and load forecasts. Even if efficiency programs are reaching their potential, if those savings are not accounted for in forecasts for load growth and supply demand, then the efficiency resources could be lost and new, unnecessary generating sources could be developed.

As an example of energy efficiency influencing both state and system planning, load growth on the Independent System Operator of New England (ISO-NE) system is shown in figure 1, below. Using business-as-usual assumptions without energy efficiency, load growth was projected to continue rising in ISO-NE at a rate of 1.1 percent per year on average, or to roughly 151,000 GWh by 2022. Once energy efficiency that was bid into ISO-NE's capacity market was included in the ISO planning forecast, load was projected to grow to only about 142,000 GWh by 2022. Including forecasted savings associated with individual state energy efficiency programs, load growth becomes essentially flat (0.3% per year on average) for the planning horizon.

IV. Rate Impact Mitigation

1. Question a. How does the cost of cost-effective energy efficiency compare to the cost of other carbon mitigation strategies? Should this difference be considered in determining whether to implement rate mitigation strategies?

Energy efficiency is a least cost resource. Given that the Wisconsin region relies on coal generation, energy efficiency can offer a low-cost alternative resource in a coal plant retirement analysis. In some cases, energy efficiency might be able to provide sufficient energy and capacity, possibly in conjunction with other resources, to enable a generator to retire a coal plant at a lower cost than retrofitting it. New power plants are the reason that Wisconsin's rates have risen more than our neighbors – increasing 80% since 2000. Efficiency can meet future capacity needs at far less cost than building new plants (over 40% cheaper on average), keeping rates down for participants and non-participants alike. Since its inception, Focus on Energy has offset more than 2 gas power plants worth of demand, while creating jobs, keeping money in the state, and strengthening the financial position of Wisconsin families and businesses.

The Focus on Energy evaluation report for 2012 estimated that the measures installed in that year alone would eventually save participants $65.8 billion on their energy bills. For a more direct rate impact comparison, data from the U.S. Energy Information Administration shows that the 2010 electricity prices were up a total of 20.4% overall compared to 2006, while FOE accounts for less than a 1% bill impact each year.

If rate impacts from efficiency are a concern to the Commission, then rate mitigation strategies could be implemented regardless of how energy efficiency compares to other carbon mitigation strategies. Efficiency programs can lead to increased rates, and rate impacts are an important consideration for regulators and other efficiency stakeholders. However, it is important to recognize that the rate impacts of energy efficiency programs are not a matter of cost-effectiveness. Instead, they are a matter of customer equity between program participants that experience reduced bills and non-participants that experience increased rates and therefore increased bills.

The central concern about rate impacts pertains to the different impacts on efficiency program participants and non-participants. In general, program participants experience most of the direct benefits of efficiency programs through reduced bills. Non-participants sometimes experience higher rates without the same level of bill savings. To address rate impacts, it is essential to consider ways to mitigate this difference by increasing opportunities for participation by all customers. It is also useful to consider the minimum amount of efficiency that a non-participant would need to implement in order to offset the bill impact.

It is important to note that all customers benefit from energy efficiency programs in certain ways, regardless of whether they participate in the programs. For example, all customers will experience reduced risk, improved reliability, reduced transmission and

distribution costs, reduced costs of environmental compliance, reduced environmental impacts, and the benefits of price suppression effects in wholesale electric markets.

Where concerns about rate impacts pose a barrier to energy efficiency programs, rate and bill impacts should be analyzed quantitatively and comprehensively so that informed decisions can be made on how to address them. Regulators, utilities and other stakeholders should not automatically conclude that energy efficiency budgets should be limited or curtailed in order to mitigate rate impacts. Instead, they should first analyze the extent of the impact, and then consider a variety of options for how to manage it.

When considering the rate impacts of efficiency programs, regulators and legislators should never lose sight of the many benefits of those programs to both participants and non-participants (e.g., reduced energy costs, increased customer satisfaction, improved reliability, reduced need for transmission and distribution facilities, reduced use of fossil fuels, and environmental benefits). The ultimate question to be addressed by the Commissioners is: are these benefits worth the expected rate impacts on non-participants? Experience with energy efficiency programs in the past has demonstrated that significant reductions in bills can be achieved with very small increases in electricity rates.

2. Question b. What rate mitigation strategies do you see as being effective?

Designing efficiency programs to reduce program costs and maximize customer participation is important for managing rate and bill impacts. Increasing levels of customer participation is key, because as more customers participate in energy efficiency programs, more customers will experience the benefits of net bill reductions. Concerns about rate impacts could be significantly mitigated if the majority of customers eventually become program participants, thereby experiencing net reductions in their own bills.

In fact, when seeking to mitigate rate impact concerns, the Commission and Wisconsin legislature should consider increasing programs budgets – rather than decreasing them – to ensure that all customers that want to participate can participate and increase the portion of customers that experience net benefits from the energy efficiency programs.

Further, over the past few years the energy efficiency programs in Wisconsin have gone through various iterations with different marketing campaigns and program structures. Such an approach increases administrative costs and confuses customers on program offerings thereby reducing program participation. Rate impacts could be further mitigated if the energy efficiency programs maintained a consistent structure that customers can readily understand and take advantage of program savings.

As discussed in the section on Energy and Demand Emphasis, putting greater emphasis on capacity savings reduces wholesale prices when they are highest and constitutes a complementary strategy for mitigating rate impacts.

V. Renewable Energy

1. Question a. How should renewable resource program cost-effectiveness be determined?

Renewable resources should not be screened for cost-effectiveness. Renewable resources provide many quantifiable and unquantifiable benefits, including system reliability, diversity of fuel sources, reduced greenhouse gas emissions, maintenance of a clean energy economy, and skilled jobs.

Renewable Portfolio Standards (RPS) programs in Wisconsin and throughout the country provide a market for renewable resources through the creation of Renewable Energy Certificates (RECs), which place a market price on renewable generation. Such RPS programs exist and are successful without the need to demonstrate or quantify the full range of benefits associated with the renewable resources. These programs inherently recognize the benefits of renewable resources, and do not require that individual renewable projects be screened for cost-effectiveness.

The Commission embraced this thinking and established a reasonable and forward-thinking policy when it "recognized that customer-sited renewable resource measures have specific attributes that are not adequately reflected in the standard cost-effectiveness tests. The Commission therefore determined it appropriate for public policy to guide decisions regarding the incorporation of renewable resources in the portfolio of Focus on Energy programs." (Docket 5-GF-191, Order dated April 26, 2012).

However, the Commission's subsequent policies stand in direct contrast to the above findings. Specifically, the Commission later found that "the $10 million renewable resource incentive funding level is contingent upon maintaining a Focus on Energy program portfolio benefit-to-cost ratio of at least 2.3 and a reduction in energy savings of the portfolio of programs due to the inclusion of renewable resource measures of no more than 7.5 percent." (Docket 5-GF-191, Order dated April 26, 2012).

The Commission first recognizes the non-quantifiable nature of many renewable energy benefits that cannot be reflected in a benefit-cost ratio, and then immediately places a relatively high benefit-cost ratio requirement on those renewable resources, thereby restricting benefits and investments in renewable resources.

The Commission should maintain its initial finding that renewable resources have specific attributes that are not adequately reflected in the standard cost-effectiveness tests. Therefore, renewable resources should not be held to specific cost-effectiveness test standards. Such an approach is similar to how RPS programs are viewed and implemented in Wisconsin and throughout the country.

Further, review and consideration of renewable programs should not be tied to the cost-effectiveness of energy efficiency programs. The value provided by renewable and energy efficiency resources is similar yet different. Energy efficiency and renewable resources can be offered to customers through one channel so as to further engage customers while they are already participating in a certain program, which leads to economies of scale and reduces implementation costs. However, the cost-effectiveness of such resources require different considerations and should not be lumped together.

A benefit-cost ratio requirement of 2.3 for both energy efficiency and renewable resources is not a common policy among states. Most states require energy efficiency programs, considered by themselves, to be cost-effective with a benefit-cost ratio greater than 1.0, and in many cases certain programs are allowed with lower benefit-cost ratio to recognize benefits associated with energy efficiency programs that are not readily quantifiable. Including renewable resources into the cost-effectiveness mix should lower the threshold, not increase the cost-effectiveness requirements (e.g., above a benefit-cost ratio of 1.0). Similarly, limiting renewable resources to no more than 7.5 percent of energy savings places an arbitrary cap on renewable resources, thereby constricting its benefit potential.

The fact that Wisconsin's RPS program has reached its target cap of 15% before the target year of 2015 suggests that there is more potential for renewable resources in Wisconsin. Limiting the addition of new renewable resources by linking their cost-effectiveness to energy efficiency programs reduces the benefits of renewable resources to the utility system and to customers.

Should the Commission choose to continue screening renewable resources for cost-effectiveness, then the Commission should consider the cost-effectiveness for energy efficiency and renewable resources separately. Further, the Commission should account for the non-quantifiable benefits associated with renewable resources, either through percentage adders applied to quantifiable benefits or costs, through reduced benefit-cost threshold requirements (i.e., less than a 1.0 benefit-cost ratio), or some combination of other methods.

2. Question b. How should the goals and funding levels for renewable resource programs be determined?

Consistent with the Commission's finding that it is appropriate for public policy to guide decisions regarding the incorporation of renewable resources in the portfolio of Focus on Energy programs, the Commission should explicitly identify and develop the goals as the basis for the public policies and funding levels for renewable resources. Such goals should be specifically recognized and articulated to ensure clarity in the renewable resources rules, and therefore successful achievement of the goals. The Commission and stakeholders can use the goals of such public policies to monitor the success of renewable programs.

For example, if the state has a public goal to reduce greenhouse gas emissions, then a policy and MWh target for renewable resources could be determined such that a certain amount of emissions are offset through renewable generation. The funding level could be determined based on achievement of that stated target.

Other public policy objectives could include reducing the relative cost of renewable resources or other resources, maximizing renewable energy potential, creating jobs within the renewable resource industry, decreasing energy costs for commercial and industrial customers, and others.

As background research, potential studies could be conducted to inform the renewable resource targets. Renewable resource program achievements in neighboring or similar states could also be reviewed for lessons learned and best practices.

However the Commission decides to determine the goals and funding levels for renewable resources, the final goals should be aggressive, building off of the state's RPS goals and achievements. Given that the RPS target has already been achieved, customer-funded renewable resources provide an opportunity to advance renewable energy with Focus programs in Wisconsin.

3. Question c. Are there criteria that should be applied to renewable resource funding, either as a whole (such as maintaining a minimum portfolio level of cost-effectiveness) or by measure or measure group (such as the Group 1 and Group 2 funding currently in place)?

The criteria that should be applied to renewable resource funding should stem directly from the public policy goals identified by the Commission, as recommended above. Once the Commission explicitly identifies the public policy goals that guide renewable resources, the specific criteria for funding requirements can be determined.

Ideally, renewable resource funding should not be limited or capped. Renewable resources provide significant benefits, many of which are difficult to quantify. Investment in renewable resources serves to increases those benefits, providing value to both customers and the utility system, including reductions in emissions.

Currently, 75 percent of funding is allocated to biomass, biogas, and geothermal technologies, while 25 percent of funding is allocated to solar thermal, photovoltaic, and wind technologies. This requirement should be removed to allow for greater diversity in renewable resources. Each type of renewable resource has its own characteristics, which benefit the utility system differently during peak and off-peak hours. Also, as the renewable energy market develops and expands, the costs for each type of resource continually decrease, some at a faster rate than others. The Focus programs should take advantage of the different characteristics and cost savings associated with different types of renewable resources. The current funding split between renewable resources does not provide such an opportunity, and should therefore be removed.

Other Issues:

VI. Balance Between Resource Acquisition and Market Transformation

Energy efficiency programs should seek to achieve long-term market changes as well as short-term savings. Long-term changes that raise the level of efficiency inherent in the operation of markets are an important component of cost-effective energy savings efforts.

The Commission should develop qualitative guidelines and objectives over the planning period in order to maximize the potential for achieving longer-term market effects at the same time it achieves short-term savings through resource acquisition.

VII. Carbon Value Over Time

Clean Wisconsin has long recommended, and the Commission has recognized, that the risk and potential cost of carbon regulation should be considered when assessing the selection of utility resources. With the impending carbon pollution rules from the EPA, it is clear that establishing a zero carbon cost would be imprudent and risky, in addition to being inconsistent with public policy mandates to secure sustainable and environmentally sound energy resources. Until there is more certainty around the precise cost of reducing emissions under such rules, carbon values should continue to be set at the historical values that represent a best prospective estimate of those costs. Going forward, the use of a carbon value to assess DSM savings would be best achieved through application to time-differentiated periods of utility usage that reflect the carbon intensity of the units operating at the margin at that time. This approach would also allow the value of current and innovative rate designs to be more effectively assessed.

Respectfully submitted this 14th day of March, 2014,

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